REMARKS

Reconsideration is requested.

Claims 1-5, and 24-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,863,232 to Kwa, in view of U.S. Patent No. 5,631,988 to Swirhun et al.

Claim 1, as amended, recites, a system comprising a housing; a circuit board supported in the housing; a plurality of slot connectors supported on the circuit board; a first card in one of the slot connectors; a first circuit component mounted on the first card, the slot connector coupling the first circuit component to a power supply; a second card in another one of the slot connectors; a second circuit component mounted on the second card; and an optical interconnect coupling the first card to the second card, the first circuit component being configured to communicate with the second circuit component via the optical interconnect, the optical interconnect being entirely supported by the first and second cards, whereby the optical interconnect does not pass through the slot connectors so that interference that could otherwise be caused by signals to and from the first circuit component is impeded.

The Kwa reference fails to disclose an optical interconnect being entirely supported by the first and second cards. The Office Action states that Swirhun discloses, in Fig. 4a, an optical interconnect coupling a first card 400 to a second card 410, the first component being configured to communicate with the second circuit component via the optical interconnect, the optical interconnect being entirely supported by the first and second cards. The Examiner is taking

the position that it would have been obvious to modify Kwa to include the teachings of Swirhun. The stated motivation is that this would be a way to alleviate misalignment problems due to thermal strain.

If Kwa was modified with the arrangement of Fig. 4a of Swirhun et al., it would not be possible to use the slot connector to couple the first circuit component to a power supply. The slot connector of Fig. 4a of Swirhun et al. is not usable when the optical interconnect is being used.

Further, applicant's attorney maintains that Kwa teaches away from any such combination. The main purpose of Kwa is to avoid the risk of operators forgetting to mate optical connector parts when inserting a circuit board or of forgetting to unmate optical connector parts when removing a circuit board by providing card guides 112. Therefore, Kwa would not have any system other than one that provides for automatic alignment of optical connector parts. Kwa would only have a system where the optical interconnects are not supported by the first and second cards. Otherwise there is no point to Kwa's invention.

Kwa states in Col. 1, lines 45 to 60 (in discussing problems with the prior art) that:

> Most optical connector parts are provided with screw or bayonet type fittings. Thus, tee optical connector parts must be rotatably mated after the circuit boards are inserted and rotatably unmated before the circuit boards are withdrawn. The optical connector parts must be mounted where they are manually accessible when the circuit boards are mounted in the frame, for

example at the front of the frame. This is not always convenient or possible, particularly when the frame carries a large number of densely packed circuit boards. Moreover, operators may forget to rotatably mate the optical connector parts when inserting a circuit board, leaving the circuit board optically disconnected, or may forget to rotatably unmate the optical connector parts when removing a circuit board, physically damaging the circuit board, connector parts or optical fibers.

Kwa then goes on to state in Col. 2, lines 4 to 16 (in discussing problems with the prior art) that:

> Unfortunately, in the known board edge optical connector arrangements the circuit board mounted optical connector parts are mounted at leading edges of the circuit boards. These leading edges are already congested with board edge electrical contacts. Moreover, in the known board edge optical connector arrangements the frame mounted optical connector parts are mounted at the back plane which is already congested with electrical board edge connectors and electrical conductors.
>
> The present invention provides an optical connector which can be used to avoid some or all of the problems described above.

Kwa solves the problem of risk of operators forgetting to mate optical connector parts when inserting a circuit board or of forgetting to unmate optical connector parts when removing a circuit board by providing card guides 112 such that (see Col. 4, lines 8 to 44) sliding insertion of the circuit boards 140 into the card guides 112 urges the board edge electrical contacts 142 into the board edge electrical connectors 116 to electrically interconnect the circuit boards, and align the optical connector parts 120, 150 in a direction transverse to the direction of insertion.

Thus, Kwa itself teaches away from a system that does not provide for automatic alignment of optical connector parts. The main purpose of Kwa is to avoid the risk of operators forgetting to mate optical connector parts when inserting a circuit board or of forgetting to unmate optical connector parts when removing a circuit board by providing card guides 112.

Therefore, Kwa teaches away from the combination with Swirhun et al. The combination of references is improper and the rejection should be withdrawn.

In addition, the problem of alleviating misalignment problems due to thermal strain would appear to be solved by Swirhun et al. alone, without any need to look to Kwa's invention.

Therefore, the combination of references is improper and all rejections relying on this combination of references are improper and should be withdrawn.

Claim 14 recites, in part, conductors coupling the power supply to the processor via the first connector, the conductors including circuit traces on the first card; and

conductors coupling the power supply to the memory via the second connector, the conductors including circuit traces on the second card.

If Swirhun et al. were combined with Kwa, it would not be possible to use the first connector to couple the power supply to the processor. The connector of Swirhun et al. is intended to be used instead of the edge connector.

Therefore, claim 14 is allowable.

As claims 15-18 depend on claim 14, they too are allowable.

Claim 19 recites, in part, conductors coupling the power supply to the first integrated circuit via the first connector, the conductors including circuit traces on the first card; and conductors coupling the power supply to the second integrated circuit via the second connector, the conductors including circuit traces on the second card.

If Swirhun et al. were combined with Kwa, it would not be possible to use the first connector to couple the power supply to the processor. The connector of Swirhun et al. is intended to be used instead of the edge connector.

Therefore, claim 19 is allowable.

As claims 20-23 depend on claim 19, they too are allowable.

Claim 24 recites inserting the first card into a first one of the slot connectors.

If Swirhun et al. were combined with Kwa, it would not be possible to insert the first card into a first one of the slot connectors. The position of the optical connector in Fig. 4a of Swirhun et al. prevents use of the slot connector. Swirhun et al. does not disclose simultaneous use of an edge connector and an optical connector.

Therefore, claim 24 is allowable.

As claims 25-30 depend on claim 24, they too are allowable.

Claim 31 recites a method comprising supporting a circuit board in a housing; supporting a plurality of slot connectors on the circuit board; supporting a processor on a first card having an edge connector; inserting the edge connector of the first card into a first one of the slot connectors to support the first card from the circuit board; providing a second card having an edge connector configured for sliding receipt in a second one of the slot connectors; supporting a synchronous link DRAM memory on a second card having an edge connector; inserting the edge connector of the second card into a second one of the slot connectors to support the second card from the circuit board; supporting a power supply in the housing; coupling the power supply to the processor via the first slot connector, the coupling including using circuit traces on the first card extending from the edge connector of the first card toward the processor; coupling the power supply to the memory via the second slot connector, the coupling including using circuit traces on the second card extending from the edge connector of the second card toward the memory; and optically coupling the processor to the memory for data communications using an optical interconnect within the housing, wherein the optical interconnect does not pass through the slot connectors.

The cited references, even if they could be combined, would fail to meet all the limitations of this claim.

If Swirhun et al. were combined with Kwa, it would not be possible to insert the first card into a first one of the slot connectors. The position of the optical connector in Fig. 4a of Swirhun et al. prevents use of the slot connector. Swirhun et al. does not disclose simultaneous use of an edge connector and an optical connector.

Therefore, claim 31 is allowable.

As claims 32-34 depend on claim 31, they too are allowable.

Claim 35 recites, in part, inserting the edge connector of the first card into a first one of the slot connectors to support the first card from the circuit board.

If Swirhun et al. were combined with Kwa, it would not be possible to insert the first card into a first one of the slot connectors. The position of the optical connector in Fig. 4a of Swirhun et al. prevents use of the slot connector. Swirhun et al. does not disclose simultaneous use of an edge connector and an optical connector.

Therefore, claim 35 is allowable.

As claims 36-38 depend on claim 35, they too are allowable.

Claims 6-7 and 29-30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,863,232 to Kwa and U.S. Patent No. 5,631,988 to Swirhun et al., and further in view of U.S. Patent No. 4,704,599 to Kimmel and the publication by Gillingham, titled "SLDRAM: High-Performance Open-Standard Memory" (hereinafter referred to as "Gillingham").

Claims 6-7 and 29-30 are allowable because the combination of Kwa with Swirhun et al. is improper, for the reasons provided above.

Claims 14-16, 18-21, 23, 31-33 and 35-37 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,863,232 to Kwa in view of U.S. Patent No. 4,704,599 to Kimmel and Gillingham.

Claims 14-16, 18-21, 23, 31-33 and 35-37 are allowable because the combination of Kwa with Kimmel and Gillingham is improper. The Kwa reference teaches away from such a combination.

Claims 17, 22, 34 and 38 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,704,599 to Kimmel, Gillingham, and U.S. Patent No. 4,863,232 to Kwa, and further in view of U.S. Patent No. 4,839,829 to Freedman.

Claims 17, 22, 34 and 38 are allowable because the combination of Kwa with Kimmel, Gillingham, and Freedman is improper. The Kwa reference teaches away from such a combination.

In view of the foregoing, allowance of claims 1-7 and 14-38 is requested.

The Examiner is requested to phone the undersigned at any time in the event that the next Office Action is one other that a Notice of Allowance.

Respectfully submitted,

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